

CLAIMS

We claim:

- Sub B2 112
1. An optical resonator comprising reflector elements and at least one discontinuous phase element disposed between said reflector elements.
 2. An optical resonator according to claim 1, and whose said reflector elements are at least one full reflector and an output coupler.
 - Sub C1 3. An optical resonator according to either of the preceding claims, and being a passive optical resonator.
 4. An optical resonator according to either of the preceding claims 1 and 2, and being an active optical resonator.
 - a 5. An optical resonator according to ^{claim 1} ~~either of the preceding claims 1, 2 and 4~~, and being the resonator of a laser.
 - a 103 ✓ 6. An optical resonator according to ^{claim 1} ~~any of the preceding claims 1, 2, 4 and 5~~, and being the resonator of a ring laser.
 - a Sub B3 7. An optical resonator according to ^{claim 1} ~~any of the preceding claims 1, 2, 4, 5 and 6~~, being a stable resonator.
 - a 8. An optical resonator according to ^{claim 1} ~~any of the preceding claims 1, 2, 4, 5 and 6~~, and being an unstable resonator.
 - a 112 9. An optical resonator according to ^{claim 1} ~~any of the preceding claims~~, and wherein said at least one discontinuous phase element is embodied in a reflector of said optical resonator.
 - a 112 10. An optical resonator according to ^{claim 1} ~~any of the preceding claims~~, and wherein said at least one discontinuous phase element is embodied in an output coupler of said optical resonator.

a 11. An optical resonator according to ^{claim 1} ~~any of the preceding claims~~, and wherein said ¹¹² at least one discontinuous phase element is positioned adjacent to an optical element of said optical resonator.

a 12. An optical resonator according to ^{claim 1} ~~any of the preceding claims~~, and wherein said at least one discontinuous phase element is placed inside said optical resonator at a defined point which is imaged onto itself from an optical element within the resonator.

¹¹² 13. An optical resonator according to ^{claim 1} ~~any of the preceding claims~~, and wherein said ¹⁰³ at least one discontinuous phase element is positioned adjacent to a flat output coupler of said optical resonator, and the full reflector of said resonator may be curved.

a ¹¹² 14. An optical resonator according to ^{claim 1} ~~any of the preceding claims~~, and wherein said ¹¹² at least one discontinuous phase element provides discontinuous phase change as well as at least one of angular, linear and radial phase change.

a ¹¹² 15. An optical resonator according to ^{claim 1} ~~any of the preceding claims~~, and also comprising an external discontinuous phase element operative in addition to the internal element in order to cancel distortions and eliminate phase discontinuities in an output beam from said optical resonator.

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